

## **REMARKS**

Claims 63-64 are pending in the present application. Applicants are amending herewith Claim 63. Support for this amendment can be found generally throughout the specification. Applicants further submit that this amendment does not introduce new matter. Applicants submit that entry of this amendment is appropriate in view of the RCE. Applicants respectfully request reconsideration of the present application in view of the foregoing amendment and the following remarks.

### **The Office Action:**

Claim 63 was rejected under 35 U.S.C. §102(e) as being anticipated by the published patent application to Umezu (U.S. Publication No. 2002/0006427). Claim 64 was rejected under 35 U.S.C. §102(e) as being anticipated by Example 57 of the patent to Koblish et al. (U.S. Patent No. 6,458,162). Claim 63 was rejected under 35 U.S.C. §102(b) as being anticipated by the patent to Takata et al. (U.S. Patent No. 4,629,464). Claim 64 was rejected under 35 U.S.C. §103(a) as being obvious and unpatentable over the published patent application to Umezu in view of the patent to Koblish et al.. Claims 63 and 64 were also objected to as containing an improper Markush group.

### **The Rejections Under 35 U.S.C. §§ 102 and 103:**

Claim 63 was rejected under 35 U.S.C. §102(e) as being anticipated by the published patent application to Umezu. The rejection states that Umezu discloses adding, stirring and mixing a binder slurry of an aqueous solution of polyvinyl alcohol or polyethylene glycol with hydroxyapatite powder forming an apatite/binder slurry. The rejection further states

that the slurry is formed into a spherical form and then sintered. To form uniformly porous ceramic spheres. The rejection states that the pores are 1-4 microns which are suitable for immobilizing microorganisms. The rejection concludes that Umezu describes the product of Claim 63. Applicants respectfully disagree.

Claim 64 was rejected under 35 U.S.C. §102(e) as anticipated by Example 57 of Koblish et al. However, no further reasoning for the rejection is given. Applicants respectfully disagree.

Claim 63 was rejected under 35 U.S.C. §102(e) as anticipated by Takata et al. However, no reasoning for the rejection is given. Applicants respectfully disagree.

Claim 64 was rejected under 35 U.S.C. §103(a) as being obvious over Umezu in view of Koblish et al. The rejection states that Fig. 3 of Koblish et al. and the associated text suggests using the material of Umezu in the form of a disk in a bioseparation filter medium in a flow through system. The rejection states that Such a system would effect retention of microorganisms on the filter block. Applicants respectfully disagree.

Umezu, Takata et al. and Koblish et al. each discloses the preparation of a ceramic material which contains calcium phosphates. Each of these disclosures describes a two part process of preparation of the calcium phosphate ceramic. The first step in each process is the mixing of calcium phosphate slurries with a polymer binder in the form of an aqueous dispersion or the saturation of a sacrificial sponge with a slurry. The second step in the process is a thermal treatment (sintering) which removes the binder or sponge by decomposition. As a result, a functional material containing calcium phosphate and no binder is generated. In these patents/publications, thermal removal of the binder generates the pore structure in the material. Koblish et al. describe this process in example 55 (Col.52); Umezu describes the sintering

process in [page 2; 0034], and Takata et al. describes the sintering process in Col. 3 lines 25-27. Thus, in each of these references, when the binder is present in the mixture, there are no pores; when there are pores, the binder has been removed by the sintering process. Therefore, none of the references discloses all of the elements of the present claims. Accordingly, applicants submit that the rejection of Claims 63 and 64 under 35 U.S.C. §102 is improper and should be withdrawn.

Since the principal reference, Umezu, does not disclose all of the elements of Claim 64; *i.e.*, a binder mixed with the hydroxyapatite and the presence of pores for immobilizing microorganisms, and since the secondary reference, Koblish et al. does not supply this missing teaching, it is submitted that Claim 64 cannot be obvious in view of Umezu and Koblish et al. Accordingly, applicants submit that the rejection of Claim 64 under 35 U.S.C. §103 is improper and should be withdrawn.

#### **Objections to the Claims:**

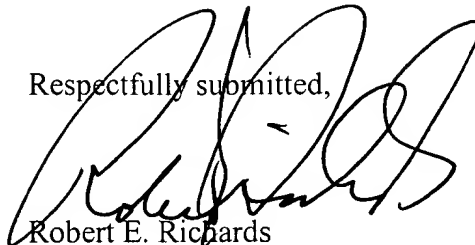
Claims 63 and 64 were objected to as containing an improper Markush group. Applicants are amending Claim 63 herewith to provide a proper Markush group. Applicants submit that the amendment of Claim 63 herewith is not a narrowing of the scope of that claim, but, rather, merely clarifies the elements already present.

#### **Conclusion:**

Applicant respectfully requests reconsideration of the present application in view of the foregoing amendments and remarks. Applicant submits that all claims are in condition for allowance. Such action is courteously solicited. Applicant further requests that

the Examiner call the undersigned counsel if allowance of the claims can be facilitated by examiner's amendment, telephone interview or otherwise.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Robert E. Richards', written over the typed name.

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